Artistry in Sound

ONKYO

# TX-903/901

## Quartz Synthesized Tuner Amplifier

**Instruction Manual**

• *Congratulations on your purchase of the ONKYO TX-903, TX-901 Tuner-Amplifier.*
• *Please read this manual thoroughly before making connections and turning power on.*
• *Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new TX-903, TX-901.* • *Please retain this manual for future reference.*

## CONTENTS


| | |
|---|---|
| **Features** | **1** |
| **Important safeguards** | **2** |
| **Precautions** | **2** |
| **Before using this unit** | **3** |
| **System connections** | **4** |
| **Control positions and names** | **7** |
| **Operations** | **9** |
| **Troubleshooting guide** | **13** |
| **Specifications** | **14** |


## *Features*

- **Plenty of Clean Power**
  TX-903: 60 watts of continuous power per channel into 8 ohms with no more than 0.2% total harmonic distortion (2 × 100 watts dynamic power at 4 ohms)
  TX-901: 45 watts of continuous power per channel into 8 ohms with no more than 0.3% total harmonic distortion (2 × 80 watts dynamic power at 4 ohms)
- **Discrete Output Stage**
  Instead of the less expensive IC power amp circuitry used in some receivers, the TX-903 and TX-901 feature output stages composed of discrete components. Not just an off — the — shelf chip, the circuit design of the output stage is optimized for the specific requirements of the tuner amplifier to assure that the TX-903 and TX-901 can not only deliver sufficient power, but also safely drive even low impedance loads.
- **40-Station FM/AM Random Preset Tuning**
- **Classified Memory Preset**
  The memory presets are divided into six classes, A through F, which can be used for different types of programs (rock, news, classical, etc.). Or each member of the family can have a separate class (class A for Dad, class B for Mom, class D for Junior). Any preset station can be assigned to any class.
- **Direct Access Tuning Using Numeric Buttons**
  Instead of using the UP or DOWN tuning buttons to scan through the available frequencies until the desired station is located, Direct Access Tuning lets you punch in the broadcast frequency directly using the numeric buttons. For example, 103.5 MHz can be selected by simply pressing the 1, 0, 3 and 5 buttons.
- **APR (Automatic Precision Reception) System**
  Onkyo's exclusive APR system lets every FM broadcast sound its best. Its built — in electronic brain monitors the signal and selects the optimum settings for RF Local/DX and Stereo Auto/Mono. The APR system settings are shown by indicators on the front panel.
- **Six Program Inputs Including Video Sound with Logic Controlled Feather-Touch Keys**
- **Two Pairs of Speaker Output Terminals**
- **Loudness Control**
- **RI Compatible Wireless Remote Control Included (TX-903 only)**

## CAUTION

"TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL."

- The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## "WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

- For models having power cords with a polarized plug.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

- Sur les modèles dont la fiche est polarisée.

ATTENTION: POUR PRÉVENIR LES CHOCS ÉLECTRIQUES NE PAS UTILISER CETTE FICHE POLARISÉE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ÊTRE INSÉRÉES À FOND SANS EN LAISSER AUCUNE PARTIE À DÉCOUVERT.

# Important safeguards

1. **Read Instructions** – All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** – All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** – All operating and use instructions should be followed.
5. **Water and Moisture** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **Carts and Stands** – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

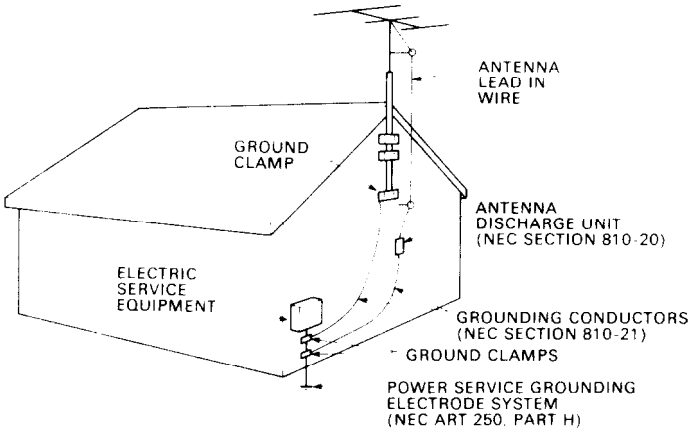
6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

PORTABLE CART WARNING

S2126A

7. **Wall or Ceiling Mounting** – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Polarization** – If the appliance is provided a polarized plug having on blade wider than the other, please read the following information: The polarization of the plug is a safety feature. The polarized plug will only fit the outlet one way. If the plug does not fit fully into the outlet, try reversing it. If there is still trouble, the user should seek the services of a qualified electrician. Under no circumstances should the user attempt to defeat the polarization of the plug.
12. **Power-Cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** – The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** – An outdooor antenna should be located away from power lines.
15. **Nonuse Periods** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
16. **Object and Liquid Entry** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
17. **Damage Requiring Service** – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped or the enclosure damaged.
18. **Servicing** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing
19. **Outdoor Antenna Grounding** – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of the antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 73.1.

**FIGURE 73.1:**
**EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE**


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC – NATIONAL ELECTRICAL CODE

S2898A

# Precautions

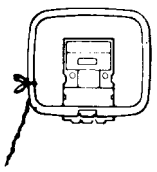
1. **Warranty Card**
   The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.
2. **Recording Copyright**
   Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.
3. **AC Fuse**
   The fuse is located inside the chassis and is not user serviceable. If power does not come on, contact your Onkyo service center.
4. **Care**
   From time to time you should wipe off the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water or a mild ammonia cleaner, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

**Memory Preservation**
This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative.
The memory preservation period after power has been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time power has been turned off. This period is shorter when the unit is exposed to a highly humid climate.

# *Before using this unit*

## 1. Supplied Accessories

AM loop antenna x 1

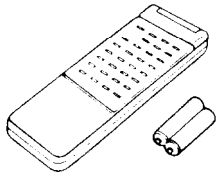


T-shaped FM antenna X 1

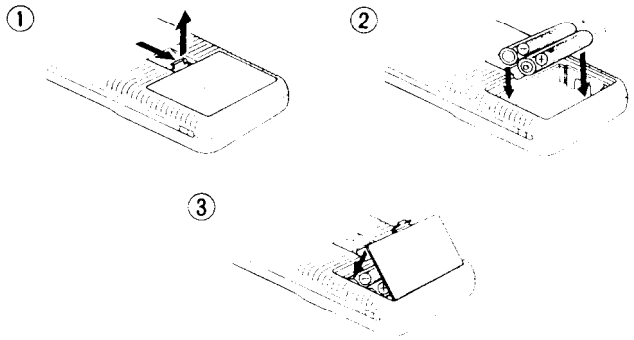
TX-903 only

RI remote control cable x 1

Remote control transmitter x 1
Battery x 2



## 2. Transmitter Battery Insertion (TX-903 only)




① Push the battery cover on the rear of the transmitter in the direction of the arrow and lift it up.
② Load the two batteries that came with the transmitter or two batteries listed in the table. Load them with the + and − ends facing as shown in the diagram.
③ Put the battery cover back in place.

### Use of Batteries

- The remote control transmitter is powered by two batteries. Before using this unit for the first time, insert the two batteries (included) as shown in the diagram.
- Average battery life is about one year. This period may be shorter depending on the frequency of use and environment (temperature and humidity) in which the remote control transmitter is used.
- If the remote control transmitter does not operate even though front panel controls function normally, the batteries should be replaced. Use only batteries listed in the following chart.

| Type | Voltage | Size |
|---|---|---|
| Manganese | 1.5V | AA<br>R6<br>UM-3 |

**NOTES:**

1. Do not leave an expired battery in the case as it may leak or damage the battery case.
2. When inserting the batteries, be sure the (+) and (−) ends are properly aligned.
3. Do not use nickel-cadmium (rechargeable) batteries.
4. Do not use one specified (manganese) battery and one alkaline battery at the same time.
5. Replace both batteries at once; do not use one old and one new battery together.

# System connections

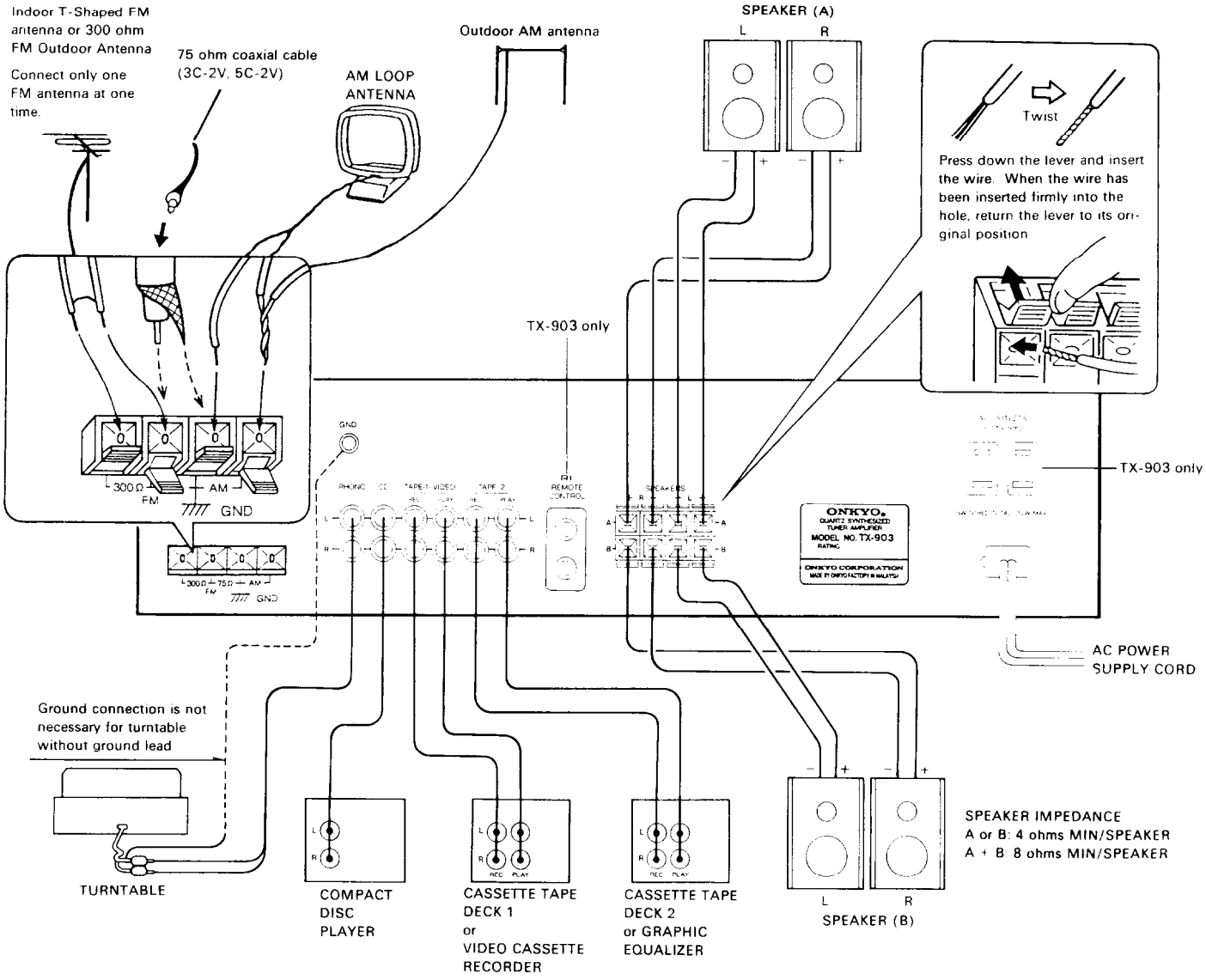
Do not plug in the cord until all connections have been made.

**General**

Switch the main power switch off before performing connections. Also be sure to perform left and right channel connections properly.

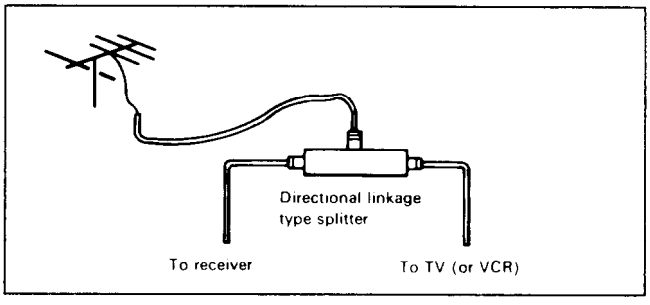
**Note to CATV system installer:**

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.


Indoor T-Shaped FM antenna or 300 ohm FM Outdoor Antenna
Connect only one FM antenna at one time.
75 ohm coaxial cable (3C-2V, 5C-2V)
AM LOOP ANTENNA
Outdoor AM antenna
SPEAKER (A)
L
R
Twist
Press down the lever and insert the wire. When the wire has been inserted firmly into the hole, return the lever to its original position
TX-903 only
TX-903 only
300Ω FM
AM
GND
GND
ONKYO
MODEL NO. TX-903
AC POWER SUPPLY CORD
Ground connection is not necessary for turntable without ground lead
TURNTABLE
COMPACT DISC PLAYER
CASSETTE TAPE DECK 1 or VIDEO CASSETTE RECORDER
CASSETTE TAPE DECK 2 or GRAPHIC EQUALIZER
SPEAKER (B)
L
R
SPEAKER IMPEDANCE
A or B: 4 ohms MIN/SPEAKER
A + B: 8 ohms MIN/SPEAKER

**FM Antenna Connections**

Use the T-shaped antenna if you live in an area where signal strength of FM broadcasts is high. Connect the antenna to the FM 300 ohms terminals and place the antenna on a wall or other surface in the position in which reception is best. If signal strength is low in your area, use a multi-element FM outdoor antenna and connect to this unit using a 75 ohm coaxial cable because this type of cable is more resistant to interference than 300 ohm cable. Consult your Onkyo authorized service center about the right type of antenna for your area.




**NOTES:**

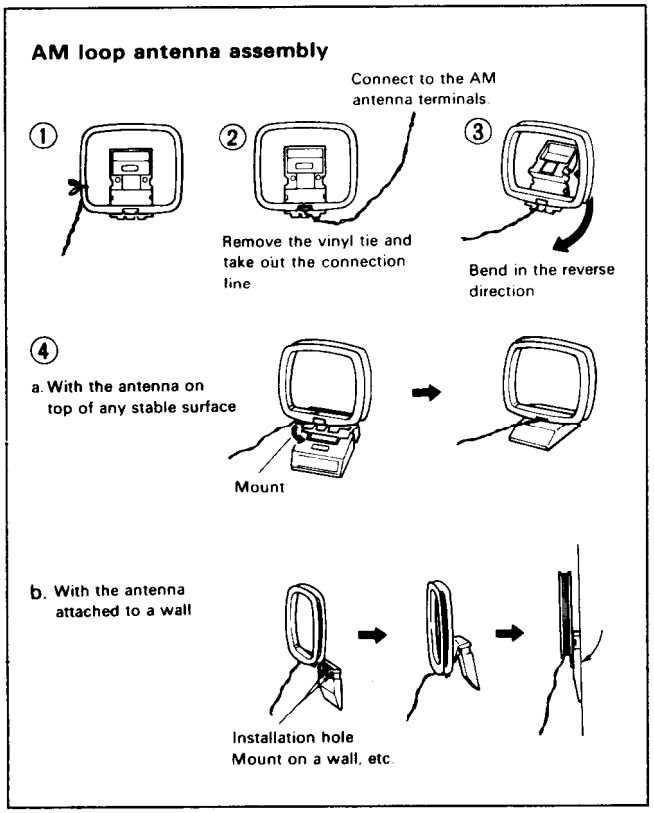
1. Do not connect both the indoor T-shaped antenna and an outdoor FM antenna. If you decide to install an outdoor antenna, be sure to disconnect the indoor T-shaped antenna.
2. Do not use the same antenna for both FM and TV reception since the FM and TV signals can interfere with each other. If you must use a common FM/TV antenna, use a directional linkage type splitter.

### AM Antenna Connections

An AM loop antenna is included in the installation instructions bag. Take out the connection line and connect it to the AM antenna terminals. This loop antenna can be placed on top of any stable surface or attached to a wall. Try several positions to determine which gives the best reception. Be sure the antenna is not near a speaker, power cord, television set, VCR, or motorized appliances. When using an external AM antenna, do not remove the loop antenna; connect both antennas to the AM antenna terminals.

**NOTE:**

AM reception is easily affected by television sets and VCRs. Therefore, AM reception may be poor if this unit is placed too close to a TV or a VCR.


AM loop antenna assembly
Connect to the AM antenna terminals
①
②
③
Remove the vinyl tie and take out the connection line
Bend in the reverse direction
④
a. With the antenna on top of any stable surface
Mount
b. With the antenna attached to a wall
Installation hole
Mount on a wall, etc.

### Turntable Connections (PHONO)

Connect the output leads of the turntable to the PHONO jacks. Be sure to connect the ground (earth) lead wire from the turntable to the ground terminal (GND). Lack of proper ground connection will cause hum. Turntables not provided with GND wires do not need to be connected.

1. Place the turntable on a firm shelf or deck free from vibrations (especially those generated by the speaker system). If the turntable is permitted to pick up such unwanted vibrations, not only with the performance of the unit drop, but distortion in the bass frequencies and howling in the speakers may also occur.
2. Check the turntable instruction manual for any other precautions.
3. The loud noises that occur when connecting and disconnecting the turntable leads, replacing the cartridge or lowering the tonearm could damage the speakers. Always turn the power switch off before making connections.

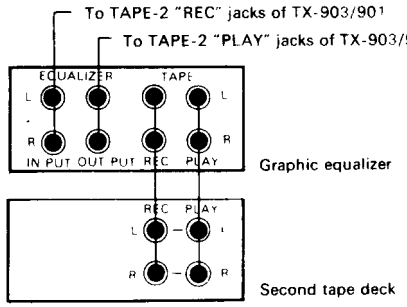
### Compact Disc Player or Other Component Connections (CD)

Connect the output leads of the CD player or an additional audio component to the CD jacks. An Onkyo CD player with remote control that has the **RI** mark can be operated by the TX-903. (Please refer to "Connections for Remote Control" on page 6.) For more details, refer to your CD player instruction manual.

### Tape Deck and Graphic Equalizer Connections (TAPE-1, TAPE-2)

1. This unit has facilities for two tape decks. If you are using only one tape deck, connect it to the TAPE-1/VIDEO jacks. If you have two tape decks, connect one to the TAPE-1/VIDEO jacks and the other to the TAPE-2 jacks.
2. Connect the output leads of the tape decks to the TAPE-1/VIDEO and TAPE-2 "PLAY" jacks. Connect the input leads of the tape decks to the TAPE-1/VIDEO and TAPE-2 "REC" jacks of the unit. For more details, refer to your tape deck instruction manual.
3. To connect a graphic equalizer, too, use the TAPE-2 jacks and connect the second tape deck to the tape jacks of the equalizer. (See the figure)

**To connect a graphic equalizer and second tape deck to the TAPE-2 jacks.**




4. For the audio signal of a VDP, VCR, etc., make the connections to the TAPE-1/VIDEO "PLAY", "REC" jacks. For details, refer to the operating instructions of the video equipment concerned.
5. If you have an Onkyo tape deck with the **RI** remote control jack, connect it to the TAPE-1/VIDEO jacks. Please refer to the section "Connections for Remote Control" on 6 page regarding connection of the remote control cable. (TX-903 only)

### Speaker Connections (SPEAKERS)

1. Connect the speakers to A and/or B terminals.
2. When connecting speakers, proper polarity is important. Always connect the (+) terminal (red) on this equipment to the (+) terminal on the speaker and the (−) terminal (black) on this equipment to the (−) terminal on the speaker.
3. Do not connect a single speaker in parallel to the right and left channel outputs.
4. Use speaker cables that have a low impedance and that are as short as possible.

- Attach speaker cables to the rear panel speaker terminals with care, being sure that connections are made firmly and that there is no possibility of a short circuit occurring.

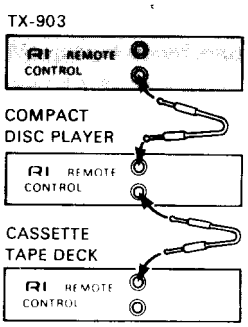
### AC Outlets

- **SWITCHED: (TX-903 only)**
  These outlets are switched on and off by the Power button on the front panel and remote control transmitter. Capacity is total 100 watts.

(TX-903 only)

### Connections for Remote Control (REMOTE CONTROL)

- A cassette tape deck and compact disc player that have the Onkyo RI mark can be operated, using the accessory remote control transmitter with the TX-903.




An RI remote control cable equipped with a 1/8" (3.5mm) diameter miniature two-conductor phone plug is attached to the TX-903 and to any compact disc player, with the RI mark.

To use an Onkyo compact disc player and cassette tape deck with the RI mark, insert the accessory remote control cable plug into the REMOTE CONTROL jacks. As far as connecting sequence is concerned, it doesn't matter whether the cable is connected from the TX-903 to the cassette tape deck or to the compact disc player. The remote control transmitter is operated by facing it towards the remote control sensor of the TX-903.

**NOTE:**

Remote control operation is not possible when only the remote control cable is connected. Remote control cable and pin cord must be connected.

### Direct function feature

**NOTE:**

This function works when an Onkyo cassette tape deck or CD player with the RI mark is connected to a TX-903 with an RI remote control cable.

Just by directly operating the desired component (compact disc player, or tape deck), the TX-903's input selector automatically switches to that component. The component that was being used stops, and the desired component starts operation. Therefore, it is not necessary to switch the TX-903's input selector when changing listening sources.

Example

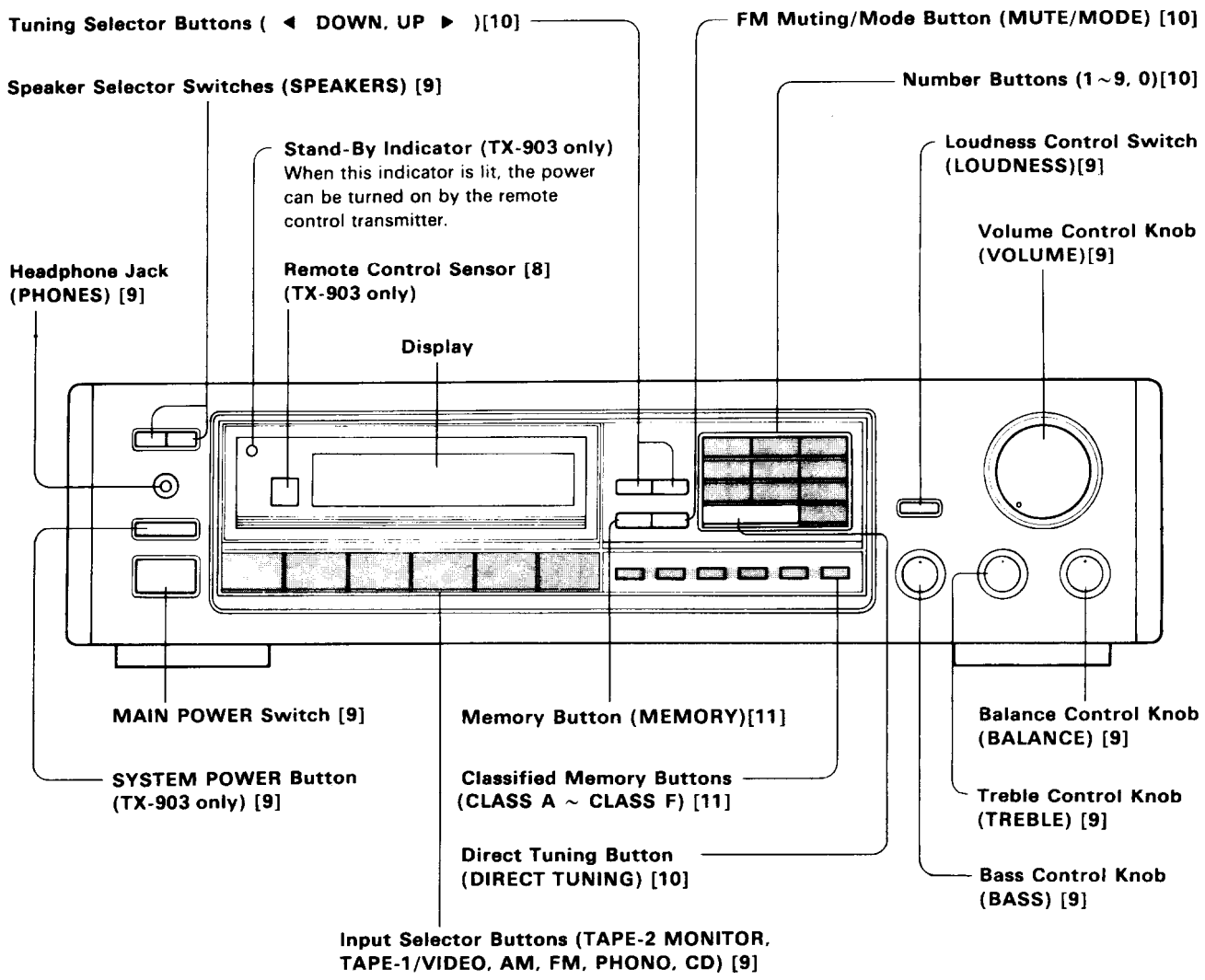
- When the compact disc player's play button is pressed, the TX-903's input selector will switch automatically to "CD." If the current listening source was a tape deck, tape playback will stop and the compact disc player will start playing.

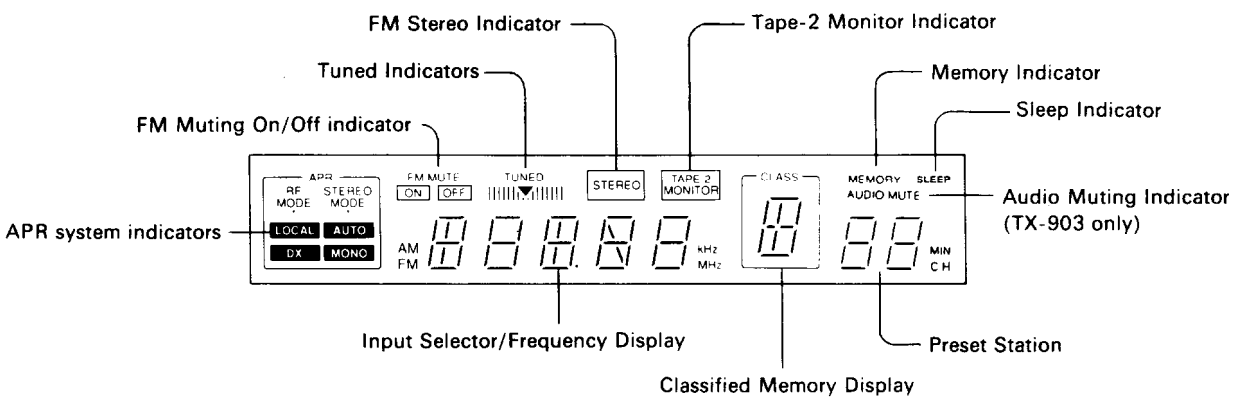
# Control positions and names

**NOTE:**

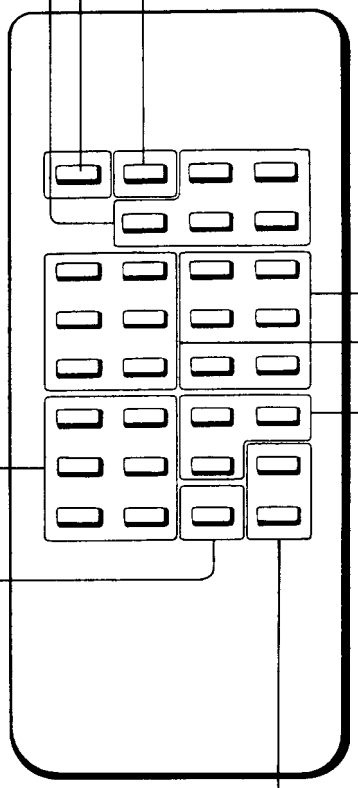
- The features, specifications, and display for the TX-903 and TX-901 are slightly different. Read this manual carefully to operate the model you have purchased correctly.

For more information about buttons or controls, turn to the page number listed in the [ ].


Tuning Selector Buttons ( ◄ DOWN, UP ► )[10]
Speaker Selector Switches (SPEAKERS) [9]
Stand-By Indicator (TX-903 only)
When this indicator is lit, the power can be turned on by the remote control transmitter.
Headphone Jack (PHONES) [9]
Remote Control Sensor [8] (TX-903 only)
Display
FM Muting/Mode Button (MUTE/MODE) [10]
Number Buttons (1~9, 0)[10]
Loudness Control Switch (LOUDNESS)[9]
Volume Control Knob (VOLUME)[9]
MAIN POWER Switch [9]
SYSTEM POWER Button (TX-903 only) [9]
Memory Button (MEMORY)[11]
Classified Memory Buttons (CLASS A ~ CLASS F) [11]
Direct Tuning Button (DIRECT TUNING) [10]
Input Selector Buttons (TAPE-2 MONITOR, TAPE-1/VIDEO, AM, FM, PHONO, CD) [9]
Balance Control Knob (BALANCE) [9]
Treble Control Knob (TREBLE) [9]
Bass Control Knob (BASS) [9]



## Remote control transmitter (TX-903 only)



**Sleep button (SLEEP) (Remote control transmitter only)**
Press to set the power off timer. The sleep timer is a function which button off the power to the system from the time it is set. When this button is pressed, "90 MIN" is displayed for 5 seconds, and the power goes off 90 minutes later. Each time the button is pressed during 5 seconds, the timer setting changes, by 10 minute intervals, such as 80, 70, 60 .... While the sleep timer is operating, the SLEEP indicator is lighted. If the sleep button is pressed during this time, the amount of time remaining on the sleep timer is displayed, and if the button is pressed during that display, 10 minutes will be subtracted from that time.
If the button is pressed when the panel display shows 10 minutes or less, the sleep timer is cancelled, and the power is not turned off.

**Power Button (POWER)**

**Input Selector Buttons (TAPE-1, TUNER, PHONO, CD, TAPE-2) [9]**
* When the TUNER button is pressed, the station which was received previously is recalled. Selection of AM or FM should be done on the main unit.

**CD Operation Buttons (CD)**
These buttons are used to operate an ONKYO CD player with the RI mark.
- ▶ : Press this button to play the CD player.
- ⏸ : Press this button to pause the CD play back. To resume disc play, press the PLAY button.
- DISC: Press to use for sequential selection of discs in the order they were loaded on the CD changer.
- ■ : Press this button to stop the CD player.
- ⏮ : Press this button to go back to the beginning of the current track and again to skip back to the previous track.
- ⏭ : Press this button to skip to the next track.

**Audio Muting Button (AUDIO MUTE) and Indicator**
This button temporarily switches off the sound from the speaker or headphone. Pressing this button will operate the TX-903 audio muting circuit. The audio muting indicator "AUDIO MUTE" will flash. Pressing the button again or using the POWER button on the remote control transmitter to turn the power on will turn off the audio muting.

**Tape Operation Buttons (DECK-A, DECK-B)**
These buttons control Onkyo double cassette tape decks that can be remote controlled. Use the DECK-B buttons to control single cassette tape decks with the RI mark.
- ●/⏸ : When this is pressed, the recording stand-by mode is entered.
- ◀ : The tape plays, moving from right to left, or, in the recording stand-by mode, recording begins.
- ■ : Interrupts all operations.
- ▶ : The tape plays, moving from left to right, or, in the recording stand-by mode, recording begins.
- ◀◀ : Fast forward from right to left.
- ▶▶ : Fast forward from left to right.

**Tuner Operation Buttons (TUNER) [11]**
CLASS: Class selector button
◀ PRESET ▶ : Preset memory DOWN/UP buttons

**Volume Buttons (UP, DOWN)**

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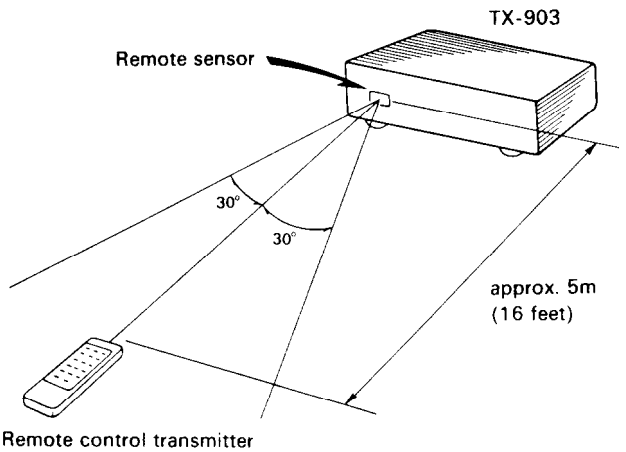
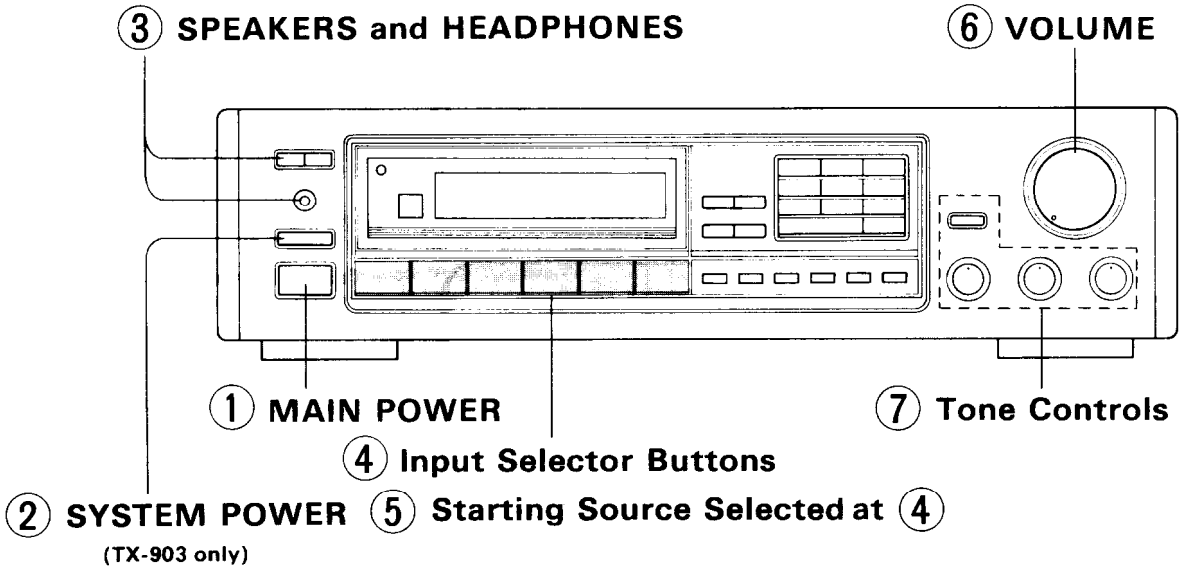
**Using the remote control transmitter**

1. Remove the batteries if the remote control transmitter is not going to be used for a long time.
2. The batteries of the remote control transmitter must be replaced periodically.
3. This unit uses infrared rays. Therefore, commands may not be received properly if the front panel of this unit is exposed to bright light. To prevent this from occurring, place this unit so that it is not directly exposed to bright light.
4. If this unit is placed inside an audio rack behind a glass door, the door should not have colored glass or have any decorations on it, since this could shorten the range or prevent commands from being received.
5. Use of other infrared remote control devices in the same room may cause interference.
6. The transmitter operates up to a distance of about five meters (16 feet). The transmitting window must always be pointed at the reception window when a command is sent to the TX-903.
7. If this remote control transmitter does not operate properly, confirm that the batteries are not dead. If the problem persists, contact your Onkyo Service Center.



**To listen to your favorite Source**




① Press the POWER switch to turn on the power. Press this switch to switch the on/off status of the power supply.

② Press this button to turn on power and the AC outlets on the rear panel when the unit is in the standby mode. Power can also be turned on by using the remote control power button (TX-903 only)

③ Select the desired pair of speakers by depressing the corresponding speaker selector switch.
- This unit can drive two pairs of speakers in pairs (A or B) or fours (A + B). To listen to both speaker systems at once, depress both speaker selector switches.
- Stereo headphones with a standard binaural plug can be connected here.

④ Press one of the desired Input Selector Button (CD, PHONO, FM, AM, TAPE-1/VIDEO).
Make sure that the connections between the input sources are correct.
- The button pressed is shown in Display. For FM or AM, the band and the frequency are shown in Display.
- Confirm that the TAPE-2 MONITOR indicator is off when a source other than the TAPE-2 MONITOR has been selected. Also check the audio muting is off. (TX-903 only)

⑤ Start play of the selected input source.
- Follow the operating instructions of that unit.
- If FM or AM is selected, please refer to the section "Tuner Reception".

⑥ Adjust the Volume Control knob to the appropriate level.
- Turn clockwise to increase the volume level. The volume can be adjusted manually and by the remote control transmitter's Volume UP/DOWN button. (TX-903 only)

⑦ Adjust the Tone Controls to obtain the desired tone setting.

■ **Bass Control Knob (BASS)**
Adjust to strengthen or weaken bass response.

■ **Treble Control Knob (TREBLE)**
Adjust to strengthen or weaken treble response.

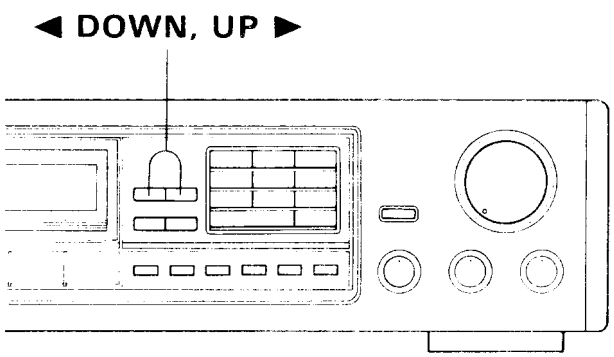
■ **Balance Control Knob (BALANCE)**
Use this control to adjust the relative volume levels of the left and right speaker systems.

■ **Loudness Control Switch (LOUDNESS)**
When listening at low volume levels, depress this switch to boost the very high and very low frequencies to provide a more natural sound.

**Tuner Reception**

Press the FM or AM Input Selector button and make sure that the TAPE-2 MONITOR indicator is off and audio muting is off.

■ **Tuning with the TUNING buttons**




To tune in an FM or AM station not stored in the memory, press one of the Tuning selector buttons. If you press UP, the frequency is increased. Pressing DOWN decreases. Note that the frequency is changed in 200kHz steps in FM and 10kHz steps in AM when the Tuning selector button is pressed in single steps. If this button is pressed continuously for more than 0.5 seconds, the auto tuning mode is entered, and frequencies are scanned automatically. When a broadcast signal is received, scanning stops and that frequency is displayed. If a different frequency is desired, press the button once again.

- The Tuned indicators will light if the broadcast is being properly received. These indicators do not light for weak broadcasts. The red " ▼ " indicator blinks during scanning. To receive a weak FM broadcast, set the MUTE/MODE button to the OFF position and select the frequency of the desired broadcast station.

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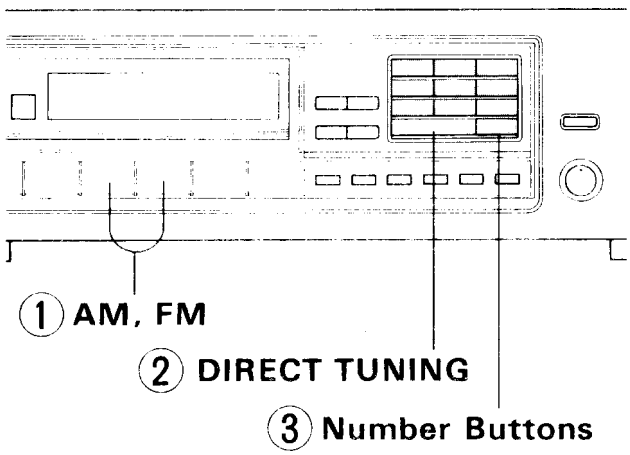
■ **Receiving a station by inputting the frequency for the station directly (Direct Tuning)**

If the frequency for the desired station is known, input the frequency number directly.




① Press the AM or FM button of the Input selector buttons.

② Press the DIRECT TUNING button.

- "- -" or "-" will flash for 16 seconds in the Frequency Display.

③ Input the desired frequency number by using the Number Buttons while the cursors are flashing. For instance, if you wish to receive the station of 88.1MHz, press the Number Buttons, 8, 8 and 1.

- For AM reception, inputting a number to the 10kHz digit sets 0 to the 1kHz digit automatically.
- If the desired frequency set in this operation does not exist, the frequency which is the nearest and lower than the desired frequency will be received. If the frequency set is not in the receive frequency range, the frequency flashes for two seconds and then the previous frequency will be displayed.
- If a wrong frequency has been set, press the DIRECT TUNING button and start again.

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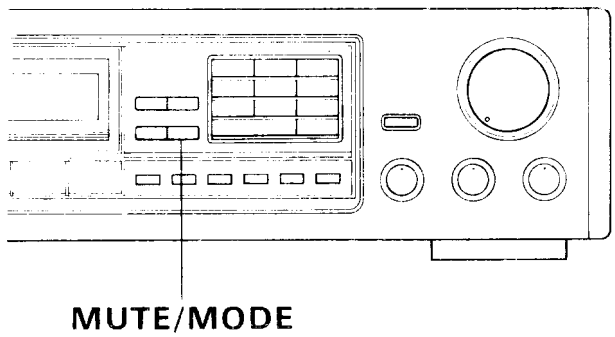
■ **How to use the FM Muting/Mode Button (MUTE/MODE)**

In the Muting ON (STEREO) setting, FM stereo reception is possible and the muting circuit suppresses interstation noise and weak FM stations. In the OFF (MONO) setting, interstation noise will be heard and even weak FM stations can be received. (Muting/Mode operation is effective for only FM reception.)




- The Stereo indicator will light up if the broadcast is being received in stereo. The Stereo indicator will not light up if the broadcast is monaural or too weak to be received in Stereo.

**Automatic Precision Reception System (FM Mode)**

APR system is Onkyo's unique computer-controlled system. APR system automatically sets the RF stage gain (Distance/Local), auto stereo/mono reception modes to the proper settings for the quality of the broadcast currently being received. This indicator changes each time the APR circuit switches between the LOCAL/DX or AUTO/MONO to show the current APR setting. (APR system is effective for only FM reception.)

**NOTES:**

- When MUTE MODE button is not ON, the APR Mode selection function does not operate, and the STEREO MODE indicator is forced to "MONO".
- The "MONO" indicator lights up for FM monaural reception.
- The RF MODE will indicate LOCAL when sufficient signal is received

## Classified Memory Function

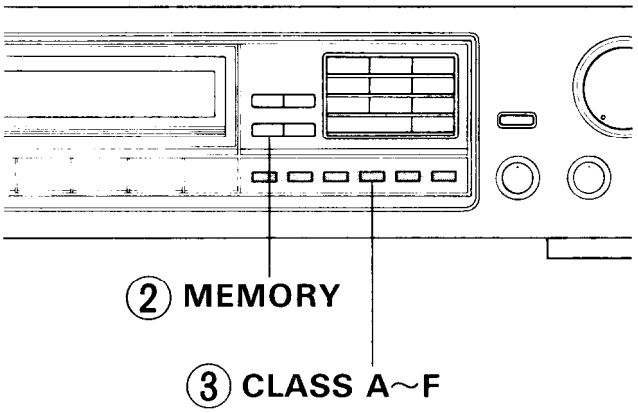
The memory can be divided (classified) for different users or programs of stations.

### ■ How to classify stations

With this model, six classes (CLASS A to F) are available and stations can be memorized in any class. A total of 40 stations can be memorized in classes from A to F. Although the same station can be memorized in different classes, the memory number for the station will differ depending on the order in which the station is memorized in the classes.

**NOTE:**

There are times when frequencies are left in the machine's memory from the final testing done prior to shipment. If this is the case with your TX-903/901, cancel unnecessary preset stations according to "How to cancel memorized stations" and memorize desired frequencies.




① Tune in the desired station (see section on "Tuner Reception").
② Press the MEMORY button.
- The MEMORY indicator will flash for 8 seconds.

③ Press the desired Classified Memory button (one of buttons A to F).
- The station is memorized in the selected class with the memory number which is the smallest of the unoccupied numbers in the class.

By repeating the operations above, up to 40 stations can be memorized. If an attempt is made to memorize 41 stations, "FULL" will be displayed in the Input Selector/Frequency Display, indicating that no more stations can be memorized.

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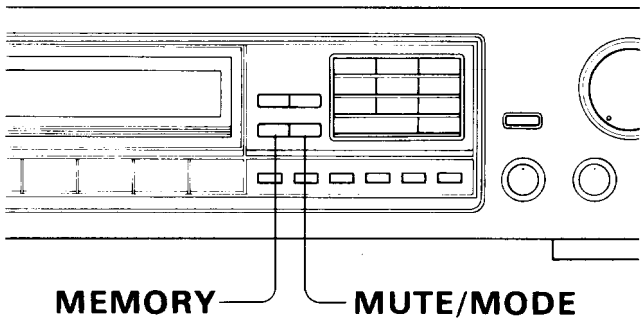
### ■ How to cancel memorized stations

Retrieve the class number you want to cancel (see "How to retrieve memorized stations") and then press the MUTE/MODE button while holding down the MEMORY button. Another station can be memorized with the memory number which has been cancelled.




### ■ How to retrieve memorized stations

① Press the Classified Memory button for the desired class. If remote control is used, the class next to the present one is retrieved when the CLASS button is pressed. (TX-903 only)
- The memory number (station) which was being received before the class is retrieved will be received.

② There are several methods to proceed after the above operations are carried out. Use any of the following methods.
a. Pressing the same Classified Memory button again permits the next preset memory number (station) to be received.
b. Input the memory number you wish to receive by using the Number buttons.
- If the memory number consists of 2 digits, input two numbers, immediately one after the other. For instance, when inputting "15", "15" will not be registered if you wait more than one second before inputting "5", resulting in only "1" being registered.
- If a number other than a number from 1 to 40, or a number which has not been memorized is input, the number flashes for 2 seconds and then the number which was displayed before will be displayed.
- If a number between 1 and 4 is pressed, the display and station are changed 1 second later.

c. When the ◄ PRESET ► button of the remote controller is pressed, the memory number of the class currently being received will be incremented or decremented. Keeping pressing the button increments or decrements continuously. After the maximum or minimum number is reached, the next class or one before the present class will be entered. (TX-903 only)

### Tape Recording

① Make all connections between the tape deck and the unit as shown in the System Connections Diagram.
② Radio: Press the FM or AM Input Selector button.
Record: Press the PHONO Input Selector button.
CD: Press the CD Input Selector button.
③ Put the tape deck in the recording mode. The recording can be monitored through the speakers or headphones as desired. For TAPE-2, turn on the corresponding Tape Monitor button to hear the signal that, having been recorded, is returned from the deck to the TX-903/901. (if the deck has three heads).
④ Set the proper recording level using the controls on the tape deck used for recording. Also, during recording and dubbing operations, never change the positions of any controls (bass, treble, etc.) on this unit.

### Tape-to-Tape Dubbing

① Connect the two tape decks to this unit as shown in the System Connections diagram.
② Load the original tape in tape deck 1 and the blank tape in tape deck 2.
③ Press the TAPE-1 Input Selector button.
④ Put tape deck 1 in the playback mode and tape deck 2 in the recording mode.
⑤ The source signal can be monitored through the speakers or headphones, when the TAPE-2 MONITOR button is in the OFF position. If tape deck 2 has three heads, the just-recorded signal can be monitored (when the TAPE-2 MONITOR button is in the ON position). Refer to the tape deck instruction manuals for more details.

### Using the Graphic Equalizer

① Connect the graphic equalizer to the TAPE-2 jacks on the rear panel.
② If a second tape deck is used, connect it to the tape jacks on the graphic equalizer.
③ Press the TAPE-2 MONITOR button.
④ Follow the graphic equalizer operating instructions.
⑤ To record an equalized signal, use tape deck 2 (connected to the equalizer) for recording.

## *Trouble shooting guide*

NOTE (TX-903 only):

If a problem occurs, first operate the unit using the front panel controls to confirm that it is not due to a malfunction (or worn out batteries) of the remote control transmitter.

| Trouble | Cause | Remedy |
|---|---|---|
| No power. | ● Power cord is disconnected.<br>● AC fuse blown. | ● Connect power cord.<br>● Contact Onkyo Service Center. |
| Power but no sound. | ● Tape monitor switch on.<br>● Audio muting switch on (TX-903 only)<br>● Bad connections.<br>● Amplifier protection circuitry has been activated. | ● Switch to off.<br>● Switch to off by remote control transmitter.<br>● Check input leads, speaker leads, pin plugs, etc.<br>● Contact Onkyo Service Center. |
| Hum, low frequency noise. | ● Poor or no input ground.<br>● Poor or no phono motor ground. | ● Check outer conductor of input plugs.<br>● Check for proper ground connection. |
| Howling when the volume is turned up. | ● Turntable and speakers are too close together. | ● Move them farther apart. |
| Rough or scratchy sound. High range is not clear. | ● Stylus of pick-up is worn.<br>● Stylus tip is dirty.<br>● Treble control too high. | ● Replace.<br>● Clean.<br>● Turn treble control down. |
| AM stations cannot be received. | ● AM loop antenna is not attached. | ● Connect the included AM loop antenna to the AM antenna terminals. |
| Buzzing noise on AM (particularly conspicuous at night or with weak stations) | ● Noise from electrical apparatus such as fluorescent lamp | ● Move AM loop antenna to different position.<br>● Set up outdoor AM antenna. |
| High pitched noise or buzzing noise on AM. | ● Noise from TV. | ● Place the AM loop antenna as far as possible from the TV.<br>● Move unit away from TV set. |
| Crackling noise on AM and FM. | ● Noise caused by turning fluorescent lamp on and off.<br>● Noise from automobile ignition. | ● Move antenna as far as possible from the fluorescent lamp.<br>● Install and FM outdoor antenna as far as possible from the road.<br>● Change the position or direction of the outdoor antenna. |
| FM tuned and stereo indicators light but sound is distorted and stereo separation is bad. | ● Station is too strong.<br>● Multiple reflection of the radio waves because of tall buildings or mountains. | ● Change to T-shaped antenna.<br>● Use antenna which has better directivity and select a point where the distortion is least. |
| FM tuned and stereo indicators flicker on and off and hiss is heard on FM. | ● Station is too weak.<br>● Stereophonic FM broadcasts cover only about half the distance of monaural broadcasts. | ● Install an outdoor FM antenna.<br>● Change the position or direction of the outdoor antenna. |
| No station is recalled when a preset station number is input. | ● The power switch has not been turned on for a long time or the power cord has been unplugged for a long time. | ● The memory contents are lost if the power switch is not turned on a few times each month. Store all stations again and remember to turn the power on a few times each month. |
| Front panel controls function but remote control transmitter does not. (TX-903 only) | ● No batteries in remote control transmitter.<br>● Batteries have worn out. | ● Insert batteries.<br>● Replace batteries. |

The tuning steps by which the tuned frequency changes on each band have been set at the factory to the proper value for the country where each unit is to be sold. If you use the unit in a country where a different tuning step is required or if the broadcast frequencies in your country change so that you can not tune in radio stations precisely, contact your authorized Onkyo Service Center.

# *Specifications*

| **AMPLIFIER SECTION** | **TX-903** | **TX-901** |
|---|---|---|
| Power Output: | 60 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40Hz to 20kHz, with no more than 0.2% THD. | 45 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40Hz to 20kHz, with no more than 0.3% THD. |
| Total Harmonic Distortion: | 0.1% at 30W | 0.1% at 30W |
| IM Distortion: | 0.1% at 30W | 0.1% at 30W |
| Damping Factor: | 50 at 8 ohms | 50 at 8 ohms |
| Frequency Response: | 20 – 30,000 Hz ± 1dB | 20 – 30,000 Hz ± 1dB |
| RIAA Deviation: | 20 – 20,000 Hz ± 0.8dB | 20 – 20,000 Hz ± 0.8dB |
| Sensitivity and Impedance: | Phono: 2.5mV/50 kohms<br>CD/Tape Play: 150mV/50 kohms<br>Tape Rec: 150mV/3.5 kohms | Phono: 2.5mV/50 kohms<br>CD/Tape Play: 150mV/50 kohms<br>Tape Rec: 150mV/3.5 kohms |
| Phono Overload: | 120mV RMS at 1kHz, 0.2% THD | 120mV RMS at 1kHz, 0.3% THD |
| Signal-to-Noise Ratio: | Phono: 80dB (at 5mV input, IHF-A)<br>CD/Tape: 100dB (IHF-A) | Phono: 80dB (at 5mV input, IHF-A)<br>CD/Tape: 100dB (IHF-A) |
| Tone Controls: | Bass: ± 10dB at 100Hz<br>Treble: ± 10dB at 10kHz | Bass: ± 10dB at 100Hz<br>Treble: ± 10dB at 10kHz |
| Loudness (−30dB): | +7dB at 70Hz, +5dB at 10kHZ | +7dB at 70Hz, +5dB at 10kHz |
| Muting: | −∞ | – |

| **TUNER SECTION** | | |
|---|---|---|
| **FM:** | | |
| Tuning Range: | 87.9 – 107.9MHz (200kHz steps) | 87.9 – 107.9MHz (200kHz steps) |
| Usable Sensitivity: | Mono: 12.4dBf, 2.3μV Stereo: 18.2dBf, 4.5μV | Mono: 12.4dBf, 2.3μV Stereo: 18.2dBf, 4.5μV |
| 50dB Quieting Sensitivity: | Mono: 18.2dBf, 4.5μV Stereo: 38.2dBf, 45μV | Mono: 18.2dBf, 4.5μV Stereo: 38.2dBf, 45μV |
| Capture Ratio: | 1.5dB | 1.5dB |
| Image Rejection Ratio: | 40dB | 40dB |
| IF Rejection Ratio: | 90dB | 90dB |
| Signal-to-Noise Ratio: | Mono:70dB Stereo:65dB | Mono:70dB Stereo:65dB |
| Alternate Channel Attenuation: | 55dB | 55dB |
| AM Suppression Ratio: | 50dB | 50dB |
| Harmonic Distortion: | Mono:0.15% Stereo:0.3% | Mono:0.15% Stereo:0.3% |
| Frequency Response: | 30 – 15,000Hz ± 1.5dB | 30 – 15,000Hz ± 1.5dB |
| Stereo Separation: | 40dB at 1kHz | 40dB at 1kHz |
| Stereo Threshold: | 17.2 dBf, 4μV | 17.2dBf, 4μV |
| **AM:** | | |
| Tuning Range: | 530 – 1710kHz (10kHz steps) | 530 – 1710kHz (10kHz steps) |
| Usable Sensitivity: | 30μV | 30μV |
| Image Rejection Ratio: | 40dB | 40dB |
| IF Rejection Ratio: | 40dB | 40dB |
| Signal-to-Noise Ratio: | 40dB | 40dB |
| Harmonic Distortion: | 0.8% | 0.8% |

| **GENERAL** | | |
|---|---|---|
| Power Supply: | AC120V, 60Hz | AC120V, 60Hz |
| Dimensions (W × H × D): | 455 × 120 × 316 mm<br>17-15/16" × 4-6/8" × 12-7/16" | 455 × 120 × 316 mm<br>17-15/16" × 4-6/8" × 12-7/16" |
| Weight: | 8.0 kg., 17.6 lbs. | 7.2 kg., 15.9 lbs. |

**Remote control transmitter RC-223S (TX-903 only)**

| | |
|---|---|
| Transmitter: | Infrared |
| Signal range: | Approx. 5 meters (16ft. 4") |
| Power supply: | Two "AA" batteries (1.5V × 2) |

Specifications and features are subject to change without notice.

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